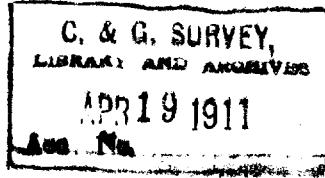


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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: Mass

DESCRIPTIVE REPORT.

Nyd e Sheet No. 3201

LOCALITY:

Hantucket Shoals
Phelps Banks & Fishing Rgn

1901

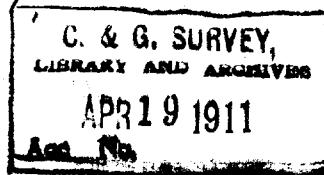
CHIEF OF PARTY:

Mr. C. Hodgkins

Department of Commerce and Labor
Report on Hyd. Sheet 3201

3201

Massachusetts



Nantucket Shoals

from Orion Shoal to Phelps Bank

W. C. Hodgkins, Chief of Party

July to Oct. 1910
1-80,000

Plotted and inked
by C.H.D.

The soundings are expressed in fathoms
and show the depth at mean low water,
the plane of reference

April 18, 1911

While plotting the work on this sheet, both
the Chief Draughtsman and Chief of De E. Div., were
consulted from time to time as to the proper adjustment
of the lines so that the only verification thought
necessary is to see that no shoal soundings have
been omitted in the plotting.

Verified in accordance with the above
by H. L. Lincoln

The important features of this survey may briefly be summarized as follows:

1. The discovery of an important shoal of considerable extent between Phelps Bank and Fishing Rip in a locality not covered by previous surveys.

This shoal has a least depth of $4\frac{1}{2}$ fathoms and covers an area about $6\frac{1}{2}$ miles in a north and south direction and $1\frac{1}{2}$ miles in an east and west direction inside the 10 fathom curve.

The shallowest part is in latitude $40^{\circ}56\frac{1}{2}'$ to $40^{\circ}57\frac{1}{2}'$ and longitude $69^{\circ}22'$, about 2 miles distant from the reported position of the Persia in 1863 and the Kentucky in 1906.

No less than 28 fathoms was found in the reported position of the Manitou in 1910 and 14 fathoms in the position of the Cheslon in 1910

2. A shoal spot with $3\frac{3}{4}$ fathoms was found on the eastern side of Davis Bank in approx. lat. $41^{\circ}13'$, long. $69^{\circ}33'20'$. This depth is given on a single line of soundings and is one fathom less than the shallowest sounding on the chart about one mile southwestward.

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3. A shoal spot with but 2 fathoms over it was found north of Old South Shoal in approx. lat. $41^{\circ} 07'$, long. $69^{\circ} 49' 30$. The chart indicates a depth here of about 10 fathoms.

This place like the one just mentioned did not receive any special development.

4. In lat. $41^{\circ} 27 \frac{1}{2}'$ and long. $69^{\circ} 27 \frac{1}{2}'$, the sounding 12 fathoms is probably an error for 22 fathoms. This sounding was taken towards the end of the last line of the season with no check on it except a few isolated soundings from a previous survey.

Insufficiently sounded

A small section about $2\frac{1}{2}$ miles southwest of Phelps Bank shows a number of discordant soundings in the several ^{previous} surveys and it is to be regretted that the new work happened to miss this particular area.

Likewise a little additional work would have been desirable in the unsurveyed area two miles southwest of the reported striking of the Chelton as indications of shoaler water can be inferred from a note in the sounding book of C day, position 84 where mention is made of "tide rips on port side", approx. lat. $41^{\circ} 19 \frac{3}{4}'$ long. $69^{\circ} 29 \frac{3}{4}'$, recorded depth 9 fathoms.

The current at that time was N X E, velocity $1\frac{1}{2}$ kn., wind South, force 1, both forces indicating shoaler water to the southwest of the line of

No. 205
Ed. 1-4-10-350,000 soundings.

This locality is 13 miles distant from the outer whistling buoy and 140° magnetic from it.

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Field records

The field party failed to turn in a boat sheet, which fact caused much annoyance especially in regard to the changes in position of barrel buoys marking temporarily the locality intended to be developed.

The records were very incomplete in giving necessary information as to whether a buoy was actually "picked up" and replaced in a new position or whether it was merely sighted.

The expression "stopped and picked up" barrel buoy is not suited to survey work.

The lack of a boat sheet also made it a matter of more or less guess work in the prediction of currents.

Discrepancies were noted in ship's courses, the log book indicating changes in courses not noted in the sounding volumes while numerous bearings were found scattered among the different installments of astrophysics and other records which should all have been noted in their proper order in the sounding volumes. A number of these records were turned in at intervals of several months after the plotting had been started, thus necessitating revision upon revision of previous plotting. The ship's log was not received until Feb. 1911.

Too frequently the personnel of the ship occupied a space in the sounding volumes which should have been reserved for bearings, the latter being crowded out of their proper position leaving in doubt the exact

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time at which they were taken

Sextant angles should have been taken whenever possible in preference to bearings.

Inaccuracies which cannot be accounted for were noted in numerous bearings, an example being the bearing of buoy No. 5 to Nantucket Shoals light vessel.

This was used as a range and the recorded bearing is in error $2\frac{1}{2}$ degrees.

The ship's heading was not always noted at turning points which made it impossible to apply the correct deviation.

Summer lines

At least a hundred of the summer lines were of no value whatever and frequently in error by 5 to 20 miles. Likewise the observations for latitude, excepting noon observations, indicated such discrepancies as to make them worthless, seven observations from one anchorage indicating a difference in latitude of $8\frac{1}{2}$ miles.

Current observations

The current observations also more than doubled the time required in plotting the field records and it is doubtful whether the work was strengthened to any considerable amount as many lines had closing errors of 5 to 8 miles and more.

A check on currents as obtained by plotting positions by bearings on line 5, position 63, and comparing

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this plotting with course and distance by log with current correction, ^{this comparison} indicated that the interpolated current was in error by nearly 2 knots per hour and that it ~~was~~ ^{should have been} a maximum instead of a minimum velocity.

The current velocities change so much in crossing shoals and channels that it makes very little difference whether the lines are plotted with or without current corrections, the ^{error being} ~~error being~~ about the same either way.

Ends of lines

Many of the longer lines were started too late in the day to enable the ship to return before night, and consequently the area of triangulation was passed over without a determination of the ship's position. At any event the ship's position should have been accurately established on the following morning instead of continuing on another long run before tying up the line.

The distribution of error on account of this double line work weakened the lines in the centre where their exact position was most essential.

The position of Nantucket Shoals Lt. Peasee dipper from that determined by Mr. Walker in 1908 by less than $\frac{1}{16}$ of a mile.

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COAST AND GEODETIC SURVEY

Washington, *Mar. 21, 1911*

Respectfully { returned
11-683 { referred } to
 forwarded }

Assistant in charge

Tide note for hyd. sheet
3201 herewith.

L.P.S.

RECEIVED
BY ASSISTANT IN CHARGE
AND REFERRED TO
MAR 21 1911
D. & E. DIV.

VEC
Mar. 20, 1911.

HYDROGRAPHIC SHEET 3201.

Vicinity of Nantucket Shoals, Massachusetts,
Between Nantucket Shoals Light Vessel and northern
end of Cape Cod, by Asst. W. C. Hodgkins, 1910.

TIDES.

Predicted tides were used for reduction of soundings.

Plane of reference is mean low water.

Mean rise and fall of tides 2 feet to 6 feet.

Coast and Geodetic Survey
MAR 20 1911
TIDAL DIVISION